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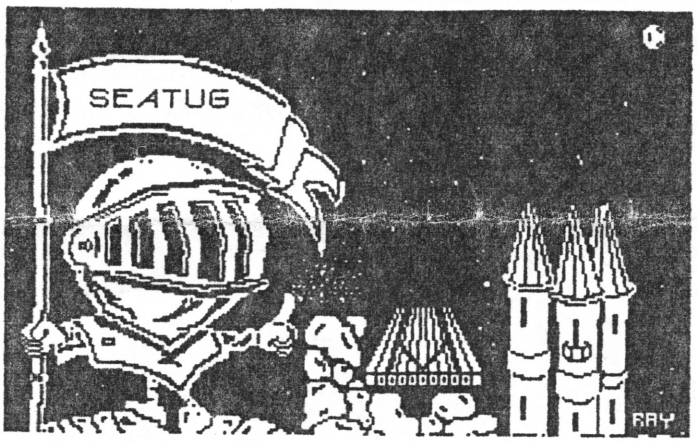
THE NEWSLETTER FOR THE SEATTLE AREA TIMEX/SINCLAIR USERS GROUP

# SWYM

NOVEMBER 1989


President : Derryck Turner
V.P. : Nancy Buckland
Secretary : Malcolm Post
Treasurer : Dave Battershill
Editors : Chuck Kereluck
: Robert Cazares


NOVEMBER MEETING:
NOVEMBER 2, 1989
THURSDAY 7:30pm

8517 35th Ave. NE. Seattle
UNIVERSITY FEDERAL SAVINGS BANK

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DON'T FORGET TO YEA OR NAY

This month is an ELECTION month. We will be electing new officers in the same fashion as last year. This was discussed at the last SEATUG meeting. So...bring your SINCLAIR voters registration card and vote!

This months contents:


1) 40K NON-VOLATILE MEMORY (T/S 1000 Project)

By: Gerry Desmaris

2) Minutes

By: Malcolm Post

3) Random Bits

By: Chuck Kereluck

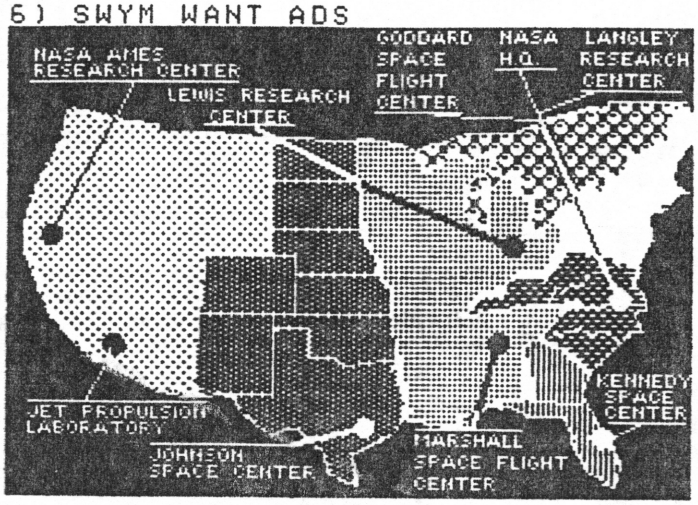
4) Software Review

By Chuck Kereluck

5) News From Around the Clubs

By: Robert Cazares

6) SWYM WANT ADS


Since NASA now has a BBS, I thought this screen save was appropriate for this month's cover.

The Milwaukie User Group is offering a video digitizing board for our T/S 2068 computers. Bare board only is $20.00. Assembled and tested boards are $59.00. You can capture images from a VCR and convert them to an RLE format which our 2068's can handle. I am ordering on for myself, so maybe I will be our next cover person!

We, the editors hope you enjoy these issue of SWYM that we painstakingly put together for your monthly reading pleasure.

# MINUTES WITH SEATUG

*by Malcolm Post, Secretary*

October 5, 1989

The meeting was called to order at 8:05 P M by President Derryck Turner. There were 12 members present.

Two newsletters were circulated for perusal of the members. They were: The October issue of The Hacker from the Las Vegas club and the August 29 issue of Kats from the Kansas Area club. We had sent them copies of our newsletter, SWYM.

The Treasurer's report, given by Dave Battershill, showed a balance on Sept. 30 of $100.66.

Dale Fritz, our Librarian, reported that we now have 108 new programs for the 2068, 33 new for the 1000 and 24 for the Spectrum.

A motion was made and passed to acquire a copy of "Applied Sinclair Subroutines and Programs for the Mathematically Minded" by Richard Booth.

Derryck reminded us that elections for officers are coming up next month. Be prepared with nominations.

The business part of the meeting ended at 8:20. It was followed by much discussion on various systems. The topics included both software and hardware.

## Editorial By:Robert Cazares

I would like to ask all of you who read this newsletter to consider making a contribution in helping us produce a strong, readable, informative, and enjoyable newsletter. ANY information, software hints, hardware modifications, where to get what, etcetera will be eagerly recieved! If you feel up to writing an article, please do so and send it to either Chuck Kereluck or myself. You can write it out whichever way you chose. If you have it in a computer file(IBM,Sinclair format), you can upload it to us via modem.
So...Lets keep this small group of Sinclair users using!

SEATUG membership dues are only #10.00 per year. Thay may be sent directly to the treasurer:

Dave Battershill
P.O. Box 64462
Tacoma, WA. 98464

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Members receive a monthly issue of SWYM - SEATUG's newsletter.

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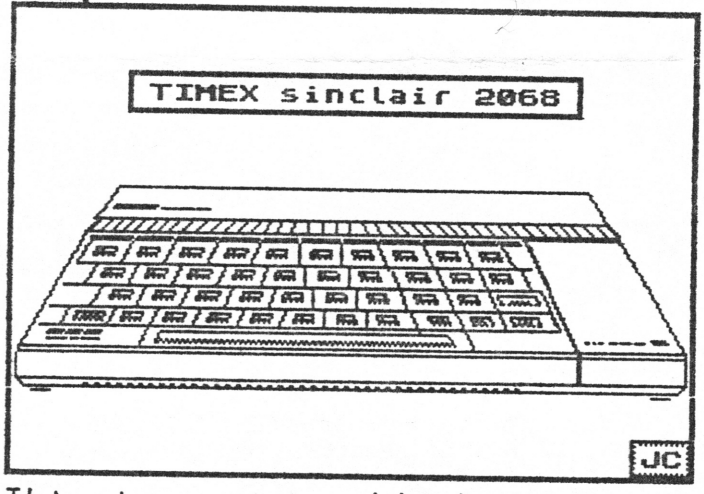
SEATUG accepts advertising. Our PREPAID rates are:

#10.00 - full page
# 8.00 - 1/2 page
# 5.00 - 1/4 page

Our membership is at approximatly 24 members. We have been distributing newsletters to other clubs and individuals who have helped us pave the way in producing a strong newsletter.

All articles enclosed in SWYM maybe reprinted by other Sinclair user groups with the exception of copyrighted materials.




This issue was published with the ZEBRA FDD 3000 Disk System and Pixel Print Professional Desktop publishing software.

TECHNICAL TALK-NOTES-DIAGRAMS-DATA-SUGGESTIONS-INFORMATION...

# Random Bits

TECHNICAL TALK-NOTES-DIAGRAMS-DATA-SUGGESTIONS-INFORMATION...

by Chuck Kerelick

## THANKSGIVING

As the Thanksgiving holidays are just around the corner, let us pause in the serene reflections that there still exists an outlet for information on Timex-Sinclair and Sinclair home microcomputers. And that we, as SEATUG members, are part of that outlet. And that we, as SEATUG members, are aware of other, similarly interested clubs and outlets, which may very well harbor an individual who may be delighted in helping any one of us on that special, Sinclair-related problem. Let us also be thankful in knowing that our user group is not a stagnant one: It is finding new ways to publish our newsletter, SWYM. It is finding new ways to expand the TS1000 computer. It is expanding our program library by incredible proportions. It has its own computer bulletin-board "room", where the uploading and downloading of any file is allowed. It is trying to save you money on long-distance telephone calls All these things. Let us give thanks for the knowledge that the continuing challenge for our Timex-Sinclair computers lies in how they can be made to use in contemporary applications. And that, once discovered, we, as SEATUG members, would instantly be knowledgable, too. Let us also be thankful that SEATUG does not employ attack dogs to collect over-due dues.

Have a Happy Thanksgiving.

## BBS SCHEMATICS A LA 1000

Some of you have been wondering about those schematics up in the Timex Users room of the Challenger BBS. The big, logical question concerns TS1000 compatibility. The files in question were created on a TS2068 computer using Tech Draw Jr and Pixel Sketch and Graphics Editor. They were uploaded via XMODEM using MTERM II communications software. Where can the TS1000 fit into, in all this? The key is to search for commonality. The schematics are 2068 SCREEN$ files. Any special file coming from the 1000 is likely to start out as a REM statement. Any commonality here? How about machine code routines to transfer the contents of the 1000's screen to an existing REM statement and back again for up/downloading purposes? How about RLE? Find an encoder/decoder program somewhere and the problem is solved. Or write one. An investigation would be in order as to exactly how RLE works. One thing's for certain, though, is that this format is strictly for black and white graphics. Perfect for the TS1000. There's an RLE program for the 2068 in our library. In the Nov/Dec '87 issue of Time Designs (Vol 4 No. 1) is an article describing in detail an RLE encoding program for the 2068. It seems to me,that the RLE format can be deciphered from this. It can be that 1st step towards downloading some RLE-formatted schematics from Challenger with your TS1000. You 2068 people, of course, don't have to worry about this. Just find a way to swap graphics with IBM, that's all.

## CONGRATS, AL

Congratulations are in order for Mr. Al Stone, who wisecracked his way through some critical surgery, lately. We wish him the best toward a speedy recovery. See ya at the meetings, Al!

## SWYM ADS

**FOR SALE =**

TS1000 w/16K RAM, 4 program tapes, inc. Supermath & Vu-Calc and 11 books. Call 633-0419 or write Howard Stein, P.O. Box 31663, Seattle, WA 98103

**WANTED =**

Keyboard keytop labels or anything that can be used as such for the TS2068. Also, any technical info on 2068s in general: schematics, descriptions, etc. Call 523-5272 or write Chuck, 9013 32nd Ave NE, Seattle, WA 98115

## NEWS FROM AROUND THE WORLD

ZX- Appeal/October 1989

The Vancouver Sinclair Users Group for those of you who have not seen it for awhile is still in the same format. It appears that VSUG suffers from the same problem many Sinclair groups suffer from, original material. This is the reason the VSUG SUMMER MEGA ISSUE and the regular September issue was not published. Rod Humphreys, the editor states,"...if the newsletter does'nt appear in your mailbox it was because no one had anything to share."

BITS of VSUG'S BITS and PIECES: NASA the space agency has a BBS. The system has 14 megs of memory 700K+ disk storage, and can answer 8 callers simultaneously at 300, 1200, and 2400 bauds. You can use X-MODEM to download files. System protocal is 8/1/N. The phone # is (205)895-0028. To initially log on, enter at username "NEWUSER" and password "NEWUSER".

The "Unofficial Master Guide to the Larken ZX-81/T/S 1000 Disk System" by Bill Harmer of Ottawa is in VSUG's club library

According to this issue, Jack Dohaney has abandoned upgrading MSCRIPT for the 2068 in favor of a program called 'WORDMASTER'. He says, "Why should I spend two or three years writing something that already exists?". He is negotiating a contract to distribute WORDMASTER in North America.

The British Computer Press reports QL microdrive cartridges will not be produced after the end of this year.

The Sinclair Milwaukie Users Group intends to host a Midwest TS'Fest on the 1st, 2nd, & 3rd of June 1990.

The Chicago Area T/S Users Newsletter reports that a member has adapted a TS 1016 RAMPACK to function on a T/S 2068 mapped into banks 5 & 6.

The HACKER/Las Vegas T/S User Group/SEPT '89/Another fine newsletter reports that GEnie Service now has a section for T/S computers. The Timex section is located in the TI section, area 13. How do yo get on to GEnie?

1)Set your modem to half duplex 300 or 1200 bauds.

2)Dial 1-800-638-8369, when connected enter HHH.

3)At the U# prompt enter
5JM11988,GENIE or
5JM11976,GENIE

4)Additional help is just a phone call away at 1-800-638-9636 Ext. 21(voice)
The registration fee for GEnie is #29.95.

TO ERR IS HUMAN

TO REALLY FOULS THINGS UP REQUIRES A COMPUTER!

The Kansas Area T/S Users Group gave SWYM a good review. They state, "...the editors have produced a fine newsletter."

I just recieved the October 1989 issue of UPDATE! Magazine. UPDATE was supposed to have coverage of the ZEBRA disk system, but their was only one page of ZEBRA info. Since I have a ZEBRA system I was somewhat dissapointed. The main coverage is geared towards the Z88, QL, and TS-2068

R. CAZARES

# 40K NON-VOLATILE MEMORY (TS1000 PROJECT)

Gerry Desmarais

Yes, yet another memory expansion for the TS1000! The difference is that this one won't forget when you turn your machine off. How do you get 40K of memory? Two chips, one 32K and one 8K, with expansion capabilty for two more 8K chips to give a total memory of 56K! The circuit can be configured into many memory setups (which can be confusing#!$$?) for maximum versatility or just for experimenting.

## OVERVIEW

What can it do?! Well, the 8K chips can be configured into the 8-16K "Hunter board" area, or the TS1000 ROM area or both places. The 32K chip can replace your 16K expansion module, providing two 16K banks, or one 32K bank. It can also be located in the 32-48K area providing two 16K banks with your 16K expansion module. All of these configurations are selectable using shorting jumpers on the board. The 16K banks (if used) are selected with a switch. Write protect and reset switches are also included to make life easier. A single 3 volt lithium battery keeps the power to the chips making them non-volatile.

The circuit is designed to be connected directly to the back of your TS1000 with a 'feed-thru' connector bus ala "Hunter board" (Why change a good thing). A twenty pin header and shorting jumper blocks are used for selecting the user configuration. Double sided PCB artwork is available for the circuit.

## THE CIRCUIT

Figure 1 shows the circuit. The decoding section uses a single LS139 (U3A) to divide the lower 16K of RAM into two groups each with two 8K sections. The other half of the LS139 (U3B) is used to decode the 16-64K area into three 16K blocks.

## 8-16K CIRCUIT

An assortment of header pins allow the bottom 16K to be mapped for the 8K chip(s). The user can configure for a maximum of two 16K systems (A and B). Each system can be mapped into the ROM area (0-8K) or the 8-16K area or both if another 8K chip is installed. The "B" system is selected with a jumper between H2 and H19. This could be used if you had an alternate ROM program and/or utility routines that would be available just by adding a jumper block!

Q4 and R21 should be used to access the TS ROM character set while using your custom ROM routine in an 8K chip. For those who have figured out how to drive their own characters with software, CR7 and R20 may be required, (this is what I've gathered from assorted literature, can anybody out there explain it to me??). If the 8-16K area is the only RAM area that will be used, CR6 and W3 can be used to replace Q4, R20, R21, and CR7, although the circuit will work either way.

The two optional 8K chips are installed "piggyback" style with the chip select pin (pin 20) bent out and connected to E10 and E11. The resistor network of R2 and R3 ensures that the chips are disabled as soon as power is turned off. R5-R7 pull-up the chip enable lines and disables the chips when they are not being selected.

## 16-64K CIRCUIT

Three of the outputs of the decoder (U3B) are used to select the 32K chip. The header pins provide a means to map the 32K chip into any combination of 32K or dual 16K blocks of memory. Jumper wire W2 is used provide access to the display file located in the 16-32K RAM, but addressed in the 48-64K area. Diodes CR3-CR5 keeps the lines isolated from each other. The switch made up with R17, R18, and Q5 isolates the battery from the non-memory circuits. Switch S1 is used to select which 16K block is addressed. The switch can be moved without turning off the computer if it is configured in the 32-48K area. If the full 32K is configured for the 16-32K area, install a jumper between H1 and H20, and leave S1 'OPEN'.

## WRITE PROTECT CIRCUIT

Components R4, R14, R16, Q3, CR2, and S2 make up the write protect circuit. Switch S2 must be closed to allow access to the memory chips. LED CR2 will be 'ON' when memory write is enabled.

## BATTERY BACKUP CIRCUIT

Battery BT1 provides power through the low voltage drop Germanium diode CR1. Capacitors C1 and C2 provide holdup and filtering of spikes. Low forward voltage drop transistor Q1 is turned on with the R8, R9, R10, and Q2 switch to power the memory from the TS1000 +5 volt power line.

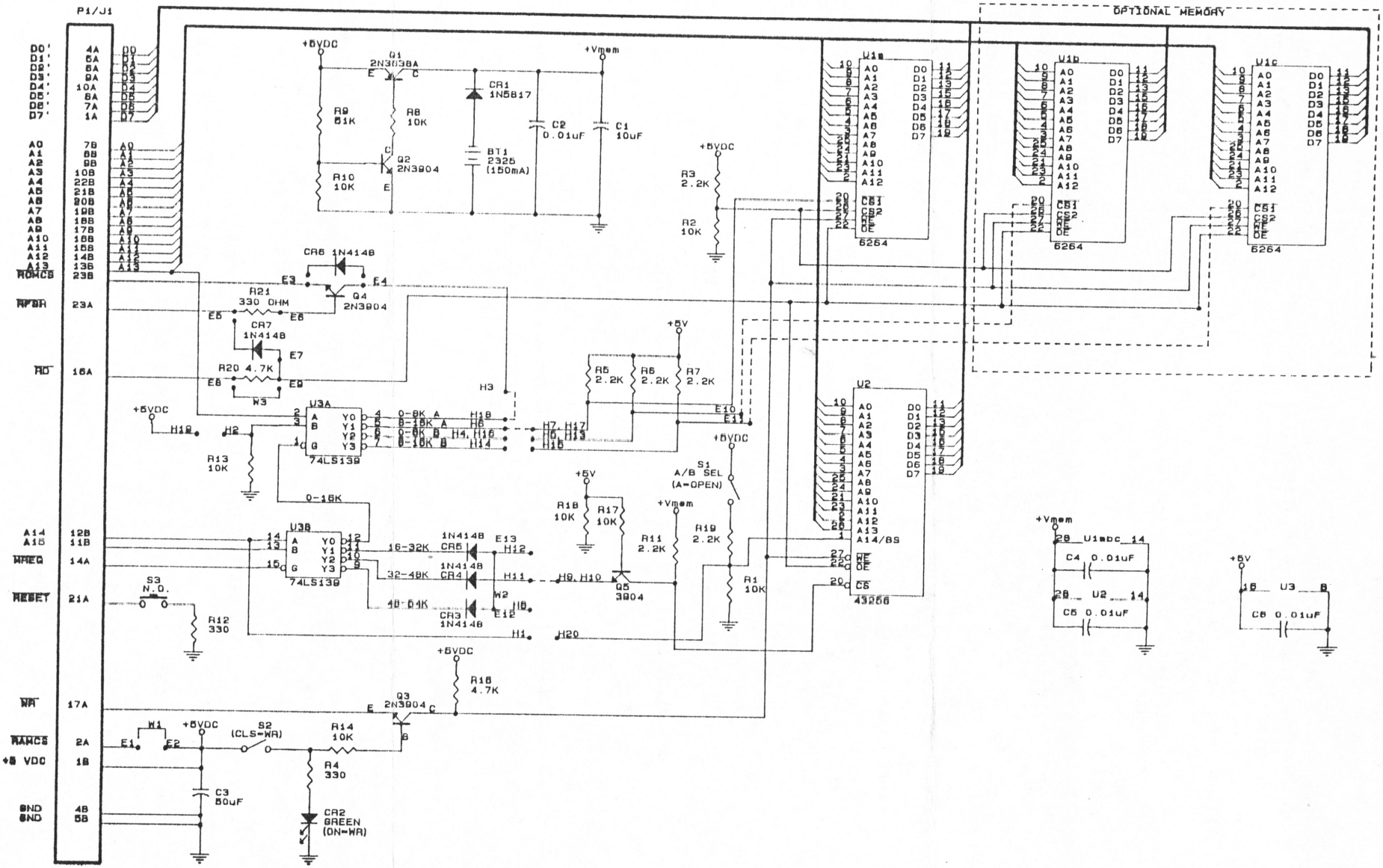
## RESET and TS1000 RAM DISABLE CIRCUITS

Switch S3 and R12 provide the CPU reset function. Jumper wire W1 should be installed only if your 16K expansion RAM is not used and you want to disable the TS1000 2K RAM.

## WHAT'S NEXT

That's all the room we have for this month, but next month look forward to less verbiage, (Yeah!) a listing of configuration setup options, hardware layout, sample drive software, and an example setup.

P.S. Let me know if there is any interest in this type of article, and I'll try to do more.


P1/J1
OPTIONAL MEMORY
+5VDC
+Vmem
+5V
Q1 2N3638A
CR1 1N5817
BT1 2325 (150mA)
C2 0.01uF
C1 10uF
R9 51K
R8 10K
R10 10K
Q2 2N3904
R3 2.2K
R2 10K
U1a
U1b
U1c
6264
CR6 1N4148
Q4 2N3904
R21 330 OHM
CR7 1N4148
R20 4.7K
W3
R5 2.2K
R6 2.2K
R7 2.2K
U3A
74LS139
0-8K A
8-16K A
0-8K B
8-16K B
H3
H2
H10
R13 10K
0-16K
U2
S1 A/B SEL (A=OPEN)
R18 10K
R17 10K
R11 2.2K
R19 2.2K
R1 10K
Q5 3904
U3B
16-32K
32-48K
48-64K
CR5 1N4148
CR4 1N4148
CR3 1N4148
S3 N.O.
R12 330
W2
H20
R16 4.7K
Q3 2N3904
S2 (CLS-WR)
R14 10K
R4 330
C3 50uF
CR2 GREEN (ON-WR)
C4 0.01uF
C5 0.01uF
C6 0.01uF
ROMCS
RFSR
RD
MREQ
RESET
WR
RAMCS
+5 VDC
GND
GND

# SOFTWARE REVIEW

*by Chuck Kereluck*

Our program library is growing by leaps and bounds. Dale's recent acquisition of 117 new 2068 programs attests to that. That's real great, but just what are all those programs like to run, anyway? Are some smooth and logical and others a lemon? Which ones? Which ones do YOU like? Don't like? Hey, you Sinclair software users, out there: How about a few notes for SWYM on your raves and raspberries? Make it a bit easier on the rest of us when we need to extract something from the library. Help us decide which ones to check out!

To get the ball rolling.here's a 2068 program that I recently picked up from Dale:

## CIRCUIT DESIGNER

One of the long-sought-after functions for the TS computers at the Kereluck Computer Corner has been the generation and storage of electronic circuit schematic diagrams. Some headway was gained in this area using SW-HI-RES on the TS1000. However, when designing the schematic symbol set, it became clear that the pattern displayed is not necessarily the pattern designed. Tech Draw Jr. for the 2068 is certainly functional in this capacity, having already started a small, growing file of 5 circuit diagrams with it. All symbols, however,must be redrawn from scratch, for every appearance.

Naturally, when I heard that our SEATUG library had a 2068-based circuit designer with predesigned symbols, I just had to check it out.

It's called Circuit Designer, and one of the most interesting things about it is that it's written entirely in BASIC! Load in the program from tape, using the name, "ckt" or just plain, LOAD "". Once loaded, a message flashes onscreen, telling you that the load is complete, but to wait while the symbols are being created. This takes a little while. Once this is done, a new message screen comes up with seven options to choose from. First timers should choose option A to read the operating instructions. At this point, it would be prudent to break the thing on the left edge is the cursor, and the 'dash' at the program at each different instruction screen and COPY it or SAVE it as a SCREEN$. With the complete instruction list printed, you can have it by your side at all times. Next, check out the circuit symbols with option D. There are 3 pages of this. The variety will surprise you. There are 16 different configurations alone for just a wire! Most other symbols have separate horizontal and verticle configurations, while the rest are rotatable. Better have a printout of these, also. There's an option in the main menu to let you do just this. Most everything is represented, from switches, resistors, capacitors, transistors, diodes,logic gates,meters, inductors, plugs and supply lines. Interesting omissions include load devices: speakers, light bulbs (there are LEDs), microphones, antennas.

Other options are: Start a new circuit, Continue existing,Save, Copy and Print the symbols.

Once into it, a special cursor marks your place on screen. You can move it about until you decide where to place the next symbol. Retrieving each one takes a two-letter, coded input. The symbol list describes the codes.

One thing that's immediately noticable, however, is that all symbols and symbol segments do not necessarily linearly match on screen with all other symbols This results in a definite jagged appearance. The differences are slight, but noticable. Another noticable characteristic is that the symbols aren't proportionate to each other. What this means, is that you'll have some very large resistors attached to some very small transistors! See the sample schematic in Fig. 1.

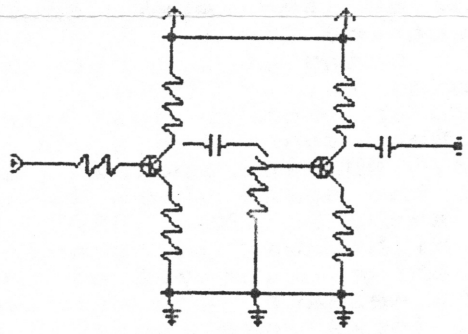


*Fig. 1*

From this, you can see what I mean. By the way, that little thing on the left edge is the cursor, and the 'dash' at the

bottom of the schematic, right above "*Fig. 1*", is an onscreen indicator showing the current chosen symbol. In this case,it's a horizontal "wire."

As to the disproportionateness, generally speaking, the active components are smaller that the passive ones.

Saving a circuit is a curious procedure: The whole program is saved, right along with the circuit! Why couldn't just a SCREEN$ SAVE have been done, instead? There's a lot to this BASIC. LOADing and saving take a long time. Come to think of it, everything seems to take a long time, in this program. This is verified by the program, itself, when it tells you to "Please Wait" at almost every other action. Maybe, while you're doing all of this waiting, you could be doing something creative with the 1000. Playing with SW-HI-RES, for instance. Saving your circuit is a 2-step job that injects a SAVE name for you. It's always "cct." If you have more than one these on tape it could be confusing. Upon reloading this, use the Continue option to bring your schematic back.

An interesting feature is the ability to "activate" or "deactivate" the completed circuit. Activation is where the program checks your circuit, by means of shaded blocks following circuit lines, for proper power and ground paths. Warnings will flash if an open is detected. You must visually tie all common lines together, also,or else the "activation" will only follow one B+ line and one ground line. I think it ignores the rest of the circuit! This is a useful function, however, for catching those obvious oversights.

One of the more fascinating aspects of Circuit Designer has has nothing at all to do with running it.

You may wonder just where all of those schematic symbols come from. RUN the program and get past the point where it creates the symbols. Now BREAK out of it. Right away you should notice something. Instead of the usual BREAK message, you see something that looks loke total garbage. Do the LIST command or just push ENTER. This is what you'll see:

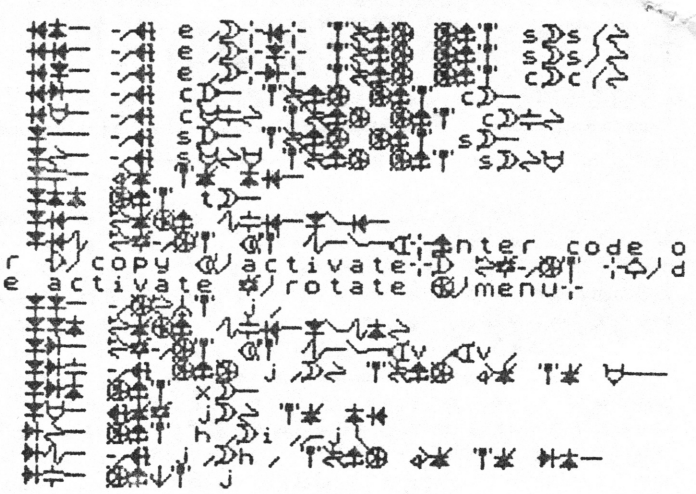



*Fig. 2*

This, believe it or not, is a portion of the BASIC program listing for Circuit Designer! After it's been translated to "Schematic," that is. If you look at it for a minute, you can begin to see where the line numbers and keywords are.

Technically, all this is, is another font! This begins to open new, heretofore unseen possibilities. For instance, can this font be extracted from the program, by itself, and then loaded into Pixel Print? If this is possible, then all symbols can then be made size-proportionate by use of the "high" and "wide" Pixel Print functions. Once the connectivity between symbols is improved (A font designer would be of great help, here.), schematics can be drawn directly onscreen into a Pixel Print file! That would surely beat creating a schematic from scratch with Tech Draw Jr. and then loading that into Pixel Print!

Speaking of doing something different with Circuit Designer, how about rewriting some of the code? Since it's BASIC, it should be relatively easy to pick out which sections to streamline by machine coding it. Maybe all of it.

For all of its slowness, this circuit designer program is a fascinating application. Looks like it easily lends itself to improvements, so it can become even more fascinating. When you make those improvements, be sure to notify the rest of your SEATUG buddies, via SWYM.

For a copy of Circuit Designer see our librarian, Dale Fritz.